Perspective

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The Low-Carbon World Is Already Here

Five Imperatives for Succeeding in an Era of Carbon Constraints

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EXECUTIVE SUMMARY

The carbon-constrained world is upon us and it is creating structural changes in the global economy. As a result, businesses must respond and adapt to the new low-carbon reality if they wish to remain competitive and prosper in the coming years and decades. Those that fail to act will exacerbate risks to their competitive positions and miss valuable opportunities for new growth.

Although the exact path to the low-carbon future remains unclear, companies can embrace five imperatives to guide them forward. These are:

- Understanding the effects of carbon constraints and climate change
- Managing and mitigating the associated risks
- Minimizing their carbon footprint
- Protecting and maximizing margins
- Realizing growth opportunities

Further, prospering in the low-carbon world will require companies to act quickly and decisively in pursuit of advantage. Those that capture the early-mover advantage will not only gain the time needed to adjust and adapt to a carbon-constrained world; they will also earn amplified returns through experience curve effects.

THE LOW-CARBON WORLD IS ALREADY HERE

Greenhouse gas emissions are driving a structural change in the global economy. Previously an externality with minimal cost consequences, carbon emissions are being internalized as governments, business partners, and consumers demand that companies shoulder the economic burden of climate control in response to global warming. This process of internalization will create risks and opportunities to generate value.

This economic internalization of climate control is occurring in a number of ways. National limits on emissions are being sought through the United Nations Framework Convention on Climate Change and the ongoing Conference of the Parties process. Despite the uncertainty that continues around the international negotiations, it is highly likely that advanced-economy nations will soon adopt binding quantitative limits on national emissions, which they will achieve through a variety of mechanisms, including regulations, incentive schemes, carbon taxes, and emissions trading. Country and regional carbon taxes, renewable energy targets, energy efficiency credit programs, and emissions trading schemes are already being considered and adopted.

The most advanced examples of the internalization of carbon costs are in the form of carbon markets. The world's first mandatory program began in New South Wales, Australia, in 2003, followed by the E.U. Emissions Trading Scheme, which commenced in 2005, the U.S. Regional Greenhouse Gas Initiative in early 2009, and the New Zealand trading scheme on July 1, 2010. New emissions trading schemes are currently being considered and constructed in Australia, the U.S., Canada, and Japan.

In recognition of their rights to continue to develop without unrealistic constraints, emerging and developing nations are being encouraged to adopt qualitative commitments to carbon-efficient development, likely in the form of a national low-carbon development strategy (LCDS). An LCDS, funded by developed nations as noted in the Copenhagen Accord, will enable these nations to investigate, design, and implement a variety of voluntary policies and initiatives (known as nationally appropriate mitigation actions or NAMAs) in an integrated and transparent manner as they continue on their development pathways.

Beyond government measures, customer buying behaviors through voluntary policies and programs, such as Walmart's Sustainability Index, are also creating new demands on suppliers.

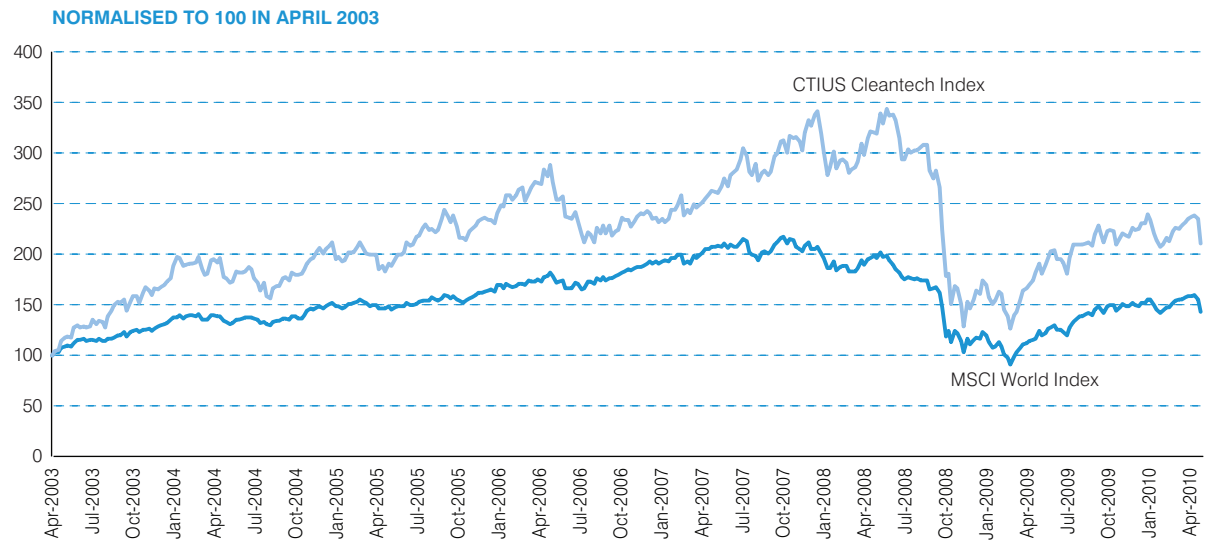
The ultimate ramification of all of these actions is the creation of a tangible price on carbon and its bottom-line impact on carbon emitters around the world. Given the carbon reduction initiatives already in place, the number of developed countries expecting to have mandatory emissions trading schemes within five years, and the number of developing nations taking voluntary action and producing credits for sale into emissions trading schemes, a vibrant international carbon market is emerging. In fact, the global carbon transaction volume in 2009 was valued at €94 billion (US$124 billion), up tenfold from 2005.[1]

LOW CARBON BRINGS RISK AND OPPORTUNITY

The structural change that the demand for carbon reduction will produce within the global economy will affect companies in different ways. The overall effect will be analogous to the recent revolution in information technology. Rapid improvements in semiconductors and information networks created tremendous value for companies that developed and sold the technologies (e.g., Apple, Cisco, and Microsoft), as well as those that harnessed the technologies to create new business models (e.g., Google, eBay, and Amazon). Conversely, the IT revolution destroyed companies and sapped industries that were not prepared to embrace changes that made products such as typewriters, fax machines, and film-based cameras obsolete.

Similar changes will occur as we make the transition to a low-carbon world. Companies offering carbon reduction solutions, such as renewable energy and low-carbon technologies, can profit from the shift—and have already begun to do so (*see Exhibit 1*). Early-mover emitters that demonstrate an appetite for active market participation and quickly develop their trading capabilities can realize competitive advantage in meeting their compliance obligations more efficiently. Conversely, big emitters that remain passive will likely experience greater exposure to risks, incur higher input costs that they may be unable to pass on to customers, and tie up valuable working capital that will have to be applied to carbon allowances. Unresponsive electricity generators relying on coal-fired plants, for example, will likely incur higher carbon costs than competitors that shift to natural gas or move to exploit incentives and tax breaks targeting renewable energy technologies.

Exhibit 1
Perfomance Comparison: CTIUS Global Cleantech Index versus Morgan Stanley Capital International (MSCI) World Index



Source: Bloomberg

THE FIVE IMPERATIVES FOR A LOW-CARBON WORLD

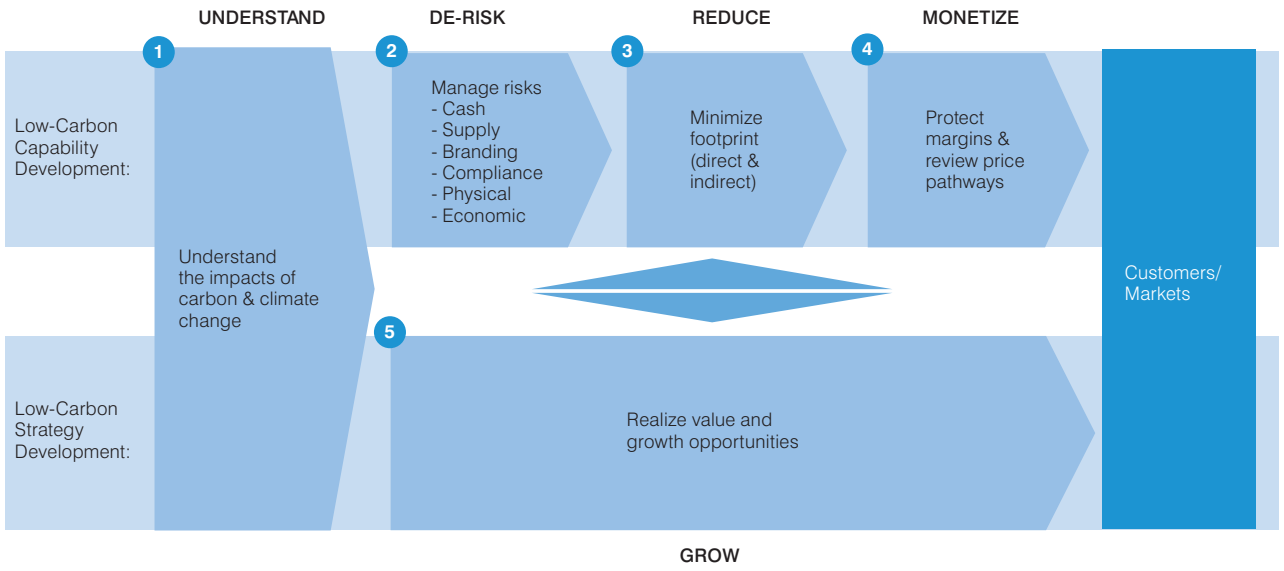
To mitigate the risks in a low-carbon world and capture its many opportunities, companies will have to act quickly, but deliberately. The design and implementation of the new systems and processes that will be needed to maximize profitability in the low-carbon economy are less about radical and risky steps than a well-considered, structured plan. Such a plan should be focused on five carbon imperatives, which can enable impacted companies to successfully adapt to and profit in the low-carbon world (*see Exhibit 2*).

Carbon Imperative 1: Understand the impact of carbon constraints and climate change

Although climate change and the drive for carbon reduction are changing the global economy, it is a change that is manifesting in different ways and at varying speeds throughout the world and by industry sector. Thus, companies must understand their exposures and opportunities on an individual basis before they act.

The most pressing challenge for companies operating in jurisdictions

Exhibit 2
Five Imperatives for Maximizing Value in a Low-Carbon World



Source: Booz & Company

that have already set or are in the process of setting a carbon price is to understand its economic effect. This requires a thorough understanding of the financial implications of enacted and proposed legislation, including emissions trading schemes, mandatory renewable portfolio standards, tax breaks, feed-in tariffs, etc., as well as customers' corporate policies, and consumer demands.

Companies with operations in developing or emerging economies need to understand how they can generate value from emissions reduction activities. They must also seek to understand how international carbon credit funding programs (such as the Clean Development Mechanism) will operate after 2012 when the Kyoto agreement expires.

Physical impacts of climate change may be significant for some companies, especially in the insurance, infrastructure, or agriculture sectors. These companies will need to understand what climate change effects might occur over time and their financial implications in order to determine the risks that they should address.

Carbon Imperative 2: Manage and mitigate the risks

Once companies understand the immediate risks posed by climate change and carbon constraints, they can act to manage and mitigate them. Actions include:

- *Financial management.* Paying carbon taxes or buying emissions permits (sometimes years ahead of their surrender) affects a company's cash position and tax burden. Active management of permit trading for large emitters is required to avoid significant impact on P&L. Companies also need to understand the impact of carbon on asset valuation to make effective asset portfolio choices.

- *Cost management.* Increased raw material prices and new costs associated with carbon taxes or procuring emissions permits to cover a company's carbon liabilities may heavily impact a company's cost structure.

- *Reputation reinforcement,* ensuring that customers and legislators perceive a company as a good corporate citizen.

- *Compliance management,* such as meeting greenhouse gas reporting and permit surrender requirements.

- *Competitive positioning,* such as proactively participating in changes, including the formulation of legislation and regulations, that will alter the playing field in a sector.

A company's ability to manage the risks entailed in the low-carbon world has the potential to create or destroy significant corporate value (*see "Managing Emissions Trading Scheme Risks with a Permit Strategy," page 6*).

Carbon Imperative 3: Minimize the carbon footprint

After companies have identified and begun to manage their immediate risks, they can turn their attention to reducing their carbon footprints.

Companies can reduce their carbon footprints by using Booz & Company's ISSR framework[2] for addressing a range of factors contributing to greenhouse gas emissions. Applied to GHG emissions, this analytical framework recognizes that the sources and causes

Managing Emissions Trading Scheme Risks with a Permit Strategy

For large greenhouse gas emitters that must comply with an emissions trading scheme, the key to risk management is a permit strategy, which takes a comprehensive approach to defining how a company will meet its emissions liability. An effective permit strategy should include the means for:

- Quantifying and monitoring the company's compliance obligation on a continuous basis via a metrics dashboard and regular management reporting
- Prioritizing the investigation of carbon reduction opportunities and their associated costs to inform permit purchases and trading activities
- Adopting a carbon procurement, trading, and hedging strategy at CEO/board level. This can range from a passive compliance approach, which accumulates permits early in the compliance year and holds them, to an active trading approach where opportunistic buying and selling can churn the company's permit liability multiple times during a compliance year
- Acquiring domestic and international permits and credits via over-the-counter trades, exchanges, regular auctions, and/or partnering arrangements, which requires internal approval processes and accounting treatments
- Implementing risk management systems throughout the organization to ensure, for example, that carbon liability is assessed as part of due diligence in evaluating acquisition targets and investment projects

As this list suggests, creating and implementing a permit strategy requires a significant amount of time. It requires building a capability that includes people, tools, skills, and processes, such as integrated price forecasting models, detailed forward supply and demand curves for each type of emissions permit, an understanding of market behavior, risk management processes, and relationships with project originators, secondary sellers, aggregators, and buyers. Thus, it is vital that big emitters prepare early for an emissions trading scheme.

of greenhouse gas emissions can be identified as inherent, structural, systemic, or realized elements (hence ISSR). The framework identifies a range of savings opportunities across the four elements by drawing from good practice benchmarks to estimate the magnitude of potential reductions and identify the highest-impact opportunities.

In terms of greenhouse gas emissions, savings can typically be generated in:

- Supply chain choices (a realized issue)
- Energy efficiency (a systemic issue)
- Supply chain optimization (a structural issue)
- Technology switching (a structural issue)
- Product redesign (an inherent issue)

For example, a British food products manufacturer reduced its greenhouse gas emissions significantly with a single supply chain change. The manufacturer had been buying potatoes by the ton, and as a result, farmers were storing the potatoes in

humidifiers to boost their moisture content and weight. Changing the basis of payment reduced the moisture content, reducing emissions in the drying/frying stage of manufacture by 10 percent and reducing supply costs. Further, farmers reduced their emissions and costs by reducing use of humidifiers.

Carbon Imperative 4: Protect margins and review price pathways

The internalization of carbon costs requires companies to protect their margins if they are to retain their profitability. This need is stimulating renewed interest in strategic pricing to minimize margin impacts and in some instances improve margins. Toward this end a number of innovative pricing approaches have emerged, including:

- Quarantining energy costs as a pass-through. For example, airlines have added fuel surcharges to their fares and electricity wholesalers add a separate cost surcharge to cover renewable energy portfolio requirements.
- Higher pricing of green products, which enables early movers to capture additional brand value and in some instances increase customer loyalty. Consider, for example, the rise in popularity of green power despite being more expensive for consumers. These customers have also proven more loyal—a valuable attribute in competitive electricity markets where churn rates can be as high as 30 percent per annum.
- Pricing ex factory gate to pass transport costs and risks to the customer. Bulk goods manufacturers, for example, are looking at this as a way of avoiding uncertainty in future transport fuel costs.
- Price discounting on products that involve lower emissions to win market share. For example, concentrated laundry powder manufacturers are able to reduce the price of their products by reflecting the lower transport costs.

Margins can also be protected and maximized by replacing high-emissions products with lower-emissions products. This substitution, when done in developing nations, also has the potential to generate carbon credits via the Clean Development Mechanism—enabling the manufacturer of the low-emissions products to access an additional revenue stream.

Carbon Imperative 5: Realize value and growth opportunities in low carbon

Finally, the low-carbon world offers valuable opportunities for growth to early movers that can secure a competitive advantage ahead of their peers. The experience of large energy companies with alternative energy investment has shown that the successful capture of carbon-related opportunities is linked to three key factors:

- The establishment of appropriate investment assessment criteria that account for uncertainty in carbon prices and different value accretion paths. Low-carbon projects should not be forced to directly compete for capital funding with established business projects, such as the expansion of an existing facility,

because low-carbon initiatives add longer-term value to a company and can be used for brand benefit. They therefore require their own capital allocation pools.

- The creation of an organizational structure and the development of the skills needed to identify and assess opportunities in the low-carbon space. Operational managers with heavy day-to-day responsibilities are unlikely to have the skills and the time needed to identify emerging low-carbon opportunities.

- The development of a willingness among senior leaders and board members to quickly and decisively seize opportunities early, such as the acquisition of intellectual property, to secure competitive advantage.

EARLY ACTION IS THE KEY TO SUCCESS

Few companies are currently seeking advantage in the low-carbon world. Booz & Company's analysis of the results of the Australia and New Zealand Carbon Disclosure Project 2009 (CDP 2009) reveals that most companies are slow to act to seize competitive advantages related to carbon—even in the face of an imminent emissions trading scheme.[3]

Most of the big emitters surveyed in the CDP 2009 study are well advanced in their understanding of the proposed emissions trading scheme. They have a strong awareness of the growth opportunities presented by the scheme. Nevertheless, few of these companies have acted on their knowledge. This limited response suggests that they will have a greater exposure to the risks of a carbon constraint and will lag behind in managing them, especially in areas such as permit strategies that require significant time to develop and refine. Similarly, the survey revealed that big emitters are not advanced in managing and reducing their carbon footprints, suggesting that they are missing significant opportunities to reduce both emissions and costs.

The reluctance of companies to address the low-carbon reality translates into a greater opportunity for those that are willing to move fast and early. Companies that embrace the five imperatives will be most successful in managing and capitalizing on carbon reduction. Their immediate action will result in a first-mover advantage that will resonate and amplify due to experience curve effects, generating value and maximizing profits throughout the transition to the low-carbon economy.

Endnotes

[1] A Source: Point Carbon's Carbon Market Monitor, www.pointcarbon.com

[2] In the ISSR (inherent, structural, systemic, realized) framework, "Inherent" refers to fundamental aspects of what a company does, such as the products it makes. "Structural" considers how a company operates, incorporating manufacturing processes and supply chain structure. "Systemic" refers to how a company manages its business. And "Realized" addresses the day-to-day decisions that a company makes, such as purchasing and hiring decisions.

[3] For details of the analysis, see Booz & Company's "Maximising Value in a Low Carbon World: Supplementary Report to the Carbon Disclosure Project Australia and New Zealand Report 2009." www.booz.com/media/file/MVLCW_4Web.pdf

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